

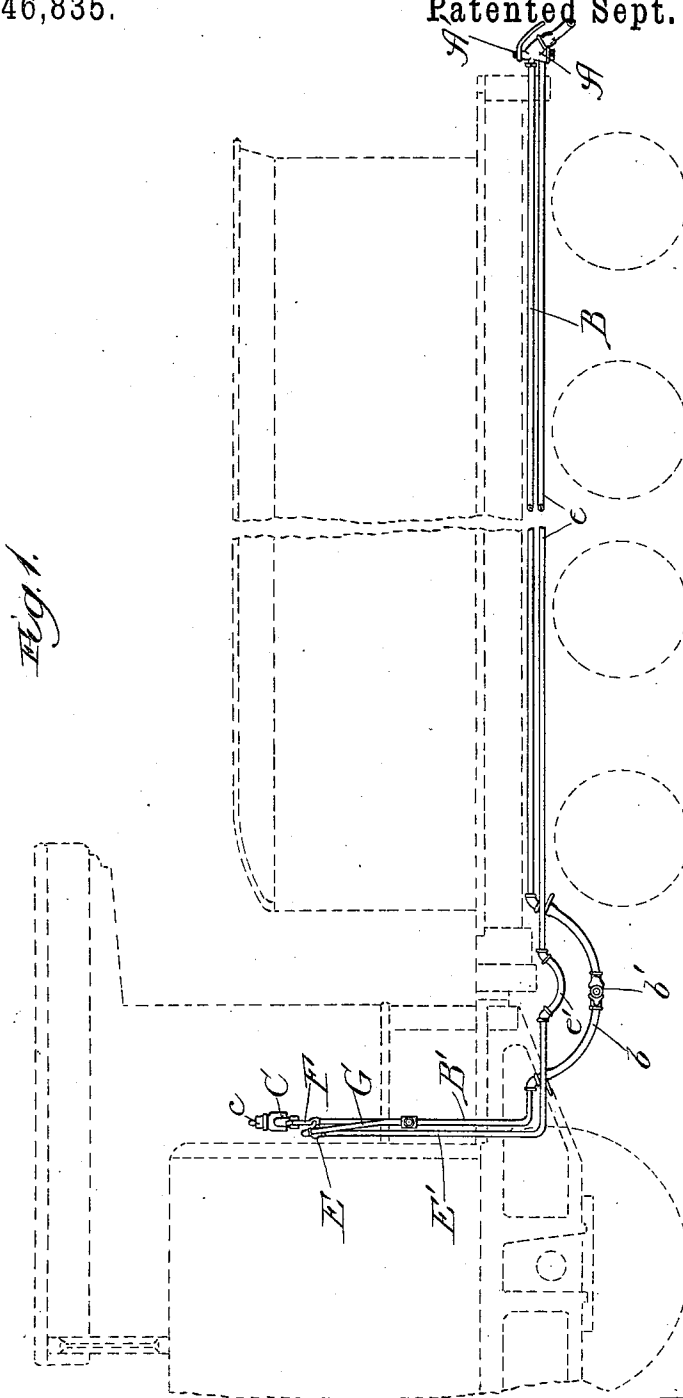
(No Model.)

2 Sheets—Sheet 1.

A. L. WHEELER.
AIR BRAKE.

No. 546,835.

Patented Sept. 24, 1895.



Witnesses:
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Fig. 2.

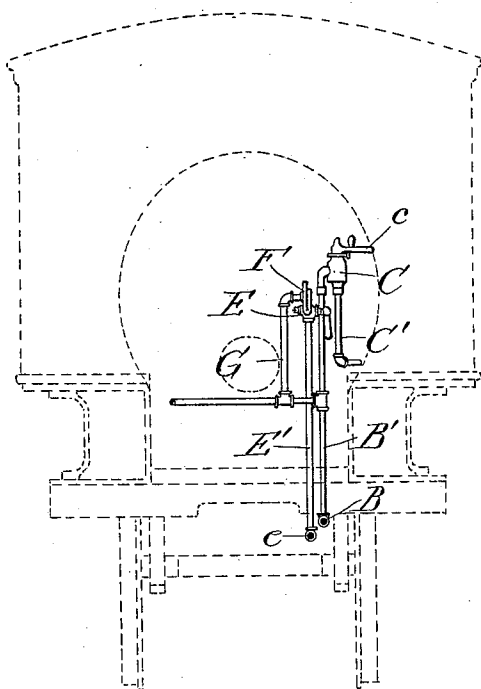


Fig. 3.

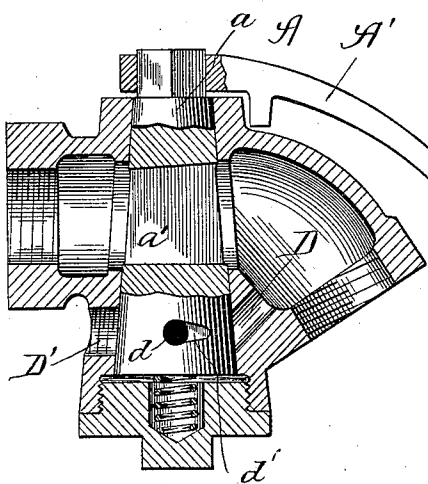


Fig. 4.

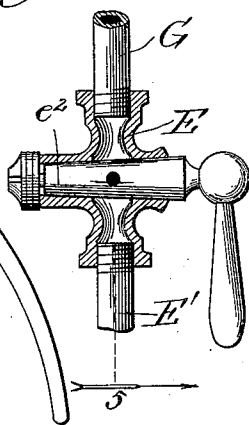
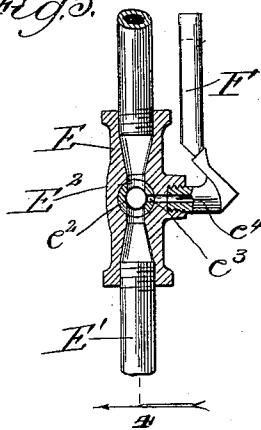


Fig. 5.



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UNITED STATES PATENT OFFICE.

ANDREW L. WHEELER, OF FREEPORT, ILLINOIS, ASSIGNOR OF TWO-THIRDS
TO EZRA O. DANA, OF SAME PLACE, AND WILLIAM F. RENSHAW, OF CHI-
CAGO, ILLINOIS.

AIR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 546,835, dated September 24, 1895.

Application filed June 25, 1894. Serial No. 515,572. (No model.)

To all whom it may concern:

Be it known that I, ANDREW L. WHEELER, of Freeport, Stevenson county, Illinois, have invented certain new and useful Improve-
5 ments in Air-Brakes, of which the following is a specification.

My invention relates more especially to the means by which the air-pressure is furnished the service and train pipes, and has for its
10 object the providing of a simple and efficient system of furnishing air to the service-pipes; and the invention consists in the features and combinations hereinafter described and claimed.

15 In the drawings, Figure 1 is a side elevation showing my improvement in use and the outlines of a portion of an engine and tender in dotted lines; Fig. 2, an end view of the locomotive-cab with a portion of my im-
20 provement in place; Fig. 3, an enlarged detail of the angle-cock, one of which is situated at the end of the tender and another in front of the pilot preferably; Fig. 4, a vertical section of the signal-cock hereinafter described,
25 taken on line 4 of Fig. 5; and Fig. 5, a sectional view of the same, taken on line 5 of Fig. 4.

It is well known in the use of air-brake systems, particularly that known as the
30 "Westinghouse" system, where the tender of the engine is provided with an angle-cock at the rear and another is supplied to the front of the engine at the pilot, both of which are connected with a source of air-pressure and under
35 the control of the engineer by what is termed the "engineer's valve," that these angle-cocks may be closed or opened in an independent manner, so that should the angle-cocks become closed accidentally, maliciously, or carelessly
40 when a train is in motion the engineer is powerless to use the air-pressure on the cars for the purpose of stopping the train. The only remedy thus far provided for such an emergency is to stop the engine as soon as
45 possible, climb back over the tender, or go to the front of the engine and open this angle-cock, so that the train may be again placed under the control of the engineer. This is not always feasible, and consequently many fatal
50 accidents have resulted from the closing of the angle-cock. To obviate these objections

and provide a mechanism by which the en-
gineer is notified that such angle-cock is closed and permit him to gain control of the train
by supplemental mechanism is the principal
55 object of my invention.

In constructing my improvement I use an angle-cock A, provided with a tapered plug *a* and lever A'. This tapered plug is pro-
vided with the usual ported opening *a'*,
60 through which the air-pressure passes to the connected cars. Connected with this angle-cock is the train-pipe B, which is passed along under the tender or around the side of
the locomotive, as the case may be, and is con-
65 nected by means of the flexible hose *b* and couplings *b'* with a pipe B', which leads from and is connected to the engineer's valve C. This engineer's valve has a pipe C', which is
connected with a source of fluid air or press-
70 ure. In ordinary instances, therefore, when the angle-cock is open, as shown in Fig. 3, by turning the handle *c* of the engineer's valve air-pressure passes through the pipes and back
75 through to the train to be used when desired. To notify the engineer when this angle-cock is closed and give him fair warning, so that he may regain control of the train, if he de-
sires, I provide the body portion of the angle-cock with an auxiliary passage D D' and the
80 plug of the cock with an auxiliary ported opening *d*, located, preferably, at right angles to the main opening of the cock and below it, so that when the main or regular passage is closed this ported opening in the plug is reg-
85 istering with the auxiliary passages, so that air-pressure may pass through the same. To always insure a supply of the air-pressure to flow through the auxiliary passage when the main passage is substantially closed and the
90 auxiliary one not quite open, I prefer to provide the tapered plug with a groove *d'*, that will afford a passage for the air before the main passage is entirely closed or the aux-
iliary passage quite open. I connect the aux-
95 iliary passage of the angle-cock with a signal-cock E, located within easy reach of the engineer and preferably adjacent to his ordinary valve, as shown in Figs. 1 and 2 of the draw-
ings, by means of the auxiliary pipe *e*, flexi-
100 ble pipe *e'*, and the pipe E', which enters the lower portion of the signal-cock, as shown in

Figs. 4 and 5. This signal-cock is provided with a tapered plug e^2 , having a main ported opening E^2 , as shown in Fig. 5 of the drawings, and an auxiliary - ported opening e^3 , which is adapted to register with the auxiliary passage e^1 , (shown in Fig. 5,) adjacent to which is secured a pneumatic gong or whistle F. In Figs. 4 and 5 of the drawings the signal-cock is shown in its open position, so that air-pressure would pass through the same; but in ordinary instances the plug in the cock will be shown at right angles thereto or in its closed position, so that the opening e^3 leads toward the bottom. In such instances, if the angle-cock at the rear of the engine or front of the pilot be closed when it is connected to the train or service pipe, the air will rush forward through the pipes e e' and E' and sound the whistle attached to the signal-cock, thus notifying the engineer that the angle-cock is entirely or partially closed.

To permit the engineer to regain control of his train and stop it by air-pressure, I connect the signal-cock with the train-pipe by means of a branch pipe G, which is preferably connected with the signal-cock at a point opposite the pipe E' . This permits the engineer to turn the plug of the signal-cock to that position shown in Figs. 4 and 5 of the drawings, so that air will rush from the train-pipes through the signal-cock, through the pipes E' e e' , and through the auxiliary ported opening D' of the angle-cock and into the train-pipes of the cars, thus permitting him at all times to have control of his train as he desires, thereby minimizing the liability which has heretofore existed of causing an accident.

The advantages attached to the use of my improvement are obvious; but the main ones are that I provide means by which the engineer is notified that the angle-cock at the front or rear of his engine has been tampered with, and gives him auxiliary means by which he can regain control of his train.

While I have described my invention with considerable minuteness as to details and arrangements, I do not desire to be limited thereto unduly any more than is pointed out in the claims. On the contrary, I contemplate all proper changes in form, construction,

and arrangement, the omission of parts and substitution of equivalents, as circumstances may suggest or necessity render expedient.

I claim—

1. An air brake system, consisting in the combination of a pipe to furnish air pressure to the usual brake mechanism, an engineer's valve to control the admission of air to such pipe, an angle cock attached to such pipe and provided with a passage for regular service and an auxiliary passage that will be in its open position when the regular passage is substantially closed, and means to connect such auxiliary passage with the train pipe, substantially as described.

2. An air brake system, consisting of the combination of pipe to furnish air pressure to the usual brake mechanism, an engineer's valve for controlling the admission of air to such pipe, an angle cock attached to such pipe and provided with an opening for the regular service pipe and an auxiliary passage that will be in its open position when the regular opening is substantially closed, an auxiliary or signal cock connected by means of pipes with the source of air pressure and the auxiliary passage in the angle cock, substantially as described.

3. An air brake system, consisting of the combination of a pipe to furnish air pressure to the usual brake mechanism from the source of air pressure, an engineer's valve for controlling the admission of air to such pipe, an angle cock attached to such pipe and provided with a passage registering with such pipe and an auxiliary passage at an angle thereto arranged to be in its open position when the regular passage is closed and vice versa, an auxiliary or signal cock connected by means of pipes with the source of air pressure and the auxiliary passage of the angle cock for furnishing a supply of air through such passage, and a pneumatic signal on the signal cock arranged to be sounded when the auxiliary passage of the angle cock is open and the signal cock closed, substantially as described.

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Witnesses:

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